1857MNRAS..17...71M

Mr. Slatter, of Rose Hill, Oxford, writes:—"The time and sky on the 2d were so favourable that I dare say you will be inundated with notices. I venture to add mine." The planet emerged "with no distortion of image. The moon's limb was very wavering; the planet's perfectly defined and steady: its colour had a slight inclination to green; I conclude by contrast."

"The first satellite emerged also in all respects as it had entered; but the second satellite remained hanging to the moon's limb for four seconds: during the first second, I thought it must be an inequality on the moon's limb; but its greater paleness showed it to be the satellite: when it let go the moon's limb, it started away spasmodically a considerable space.

"I have hitherto been rather sceptical about such appearances, attributing them to the want of power in the instrument, or the fatigued vision of the observer; but what I saw I feel sure was the effect of our own atmosphere, and no lunar appendage.

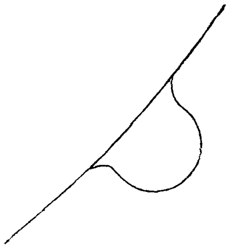
"It is worthy of remark that the flickerings were entirely interrupted at that part of the Moon's limb, at which the planet was emerging. I remember noticing the same thing very particularly in the case of the sun's limb on the occasion of the transit of *Mercury* in 1848.

"I make the following extract from my book, Nov. 9, of that year: 'Very difficult to say when *Mercury* was fully in, as the sun's limb was very wavy: certainly no black thread formed. The power used was 117, the lowest of the micrometer being too high for the day. Air loaded with vapour. It is to be noted that the first appulse was easily visible, because it *stopped* the apparent waves on the sun's limb.'"

Occultation of Jupiter. By W. Simms, Esq.

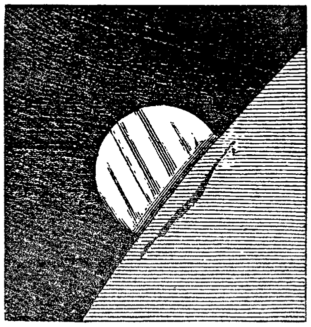
"The occultation of the planet *Jupiter* by the moon on the 2d inst. was seen by me at Carshalton: the immersion with an achromatic object-glass of 15 inches, and the emersion with one of 13 inches aperture, and a power of 200 in both cases.

"The moon's limb advanced steadily over the planet till the latter was about half occulted, when I observed that at the extremities of the line of contact the planet appeared as represented in the accompanying figure, and this appearance continued till only a very small part of the planet remained visible. It is true that there was, at the time, much unsteadiness of atmosphere, but I watched the phenomenon very attentively, and believe I was not mistaken.



1857MNRAS..17...71M

"The only remarkable appearance noticed by me during the emersion was the very positive line by which the moon's limb was marked upon the planet; dark as the mark of a black-lead pencil close to the limb, and gradually softened off as the distance increased.



"The occultation was observed in London by Messrs. James Simms and W. Simms, jun., by the former with a telescope of 2¼ inches, and by the latter with one of 5½ inches aperture. The appearance noticed by me during the immersion was not seen by either of them, but the line defining the moon's limb upon the body of the planet was distinctly seen by both."

In addition to the foregoing accounts, which are for the most part given nearly as received from their respective authors, are many others from which extracts only can be taken.

Dr. Lee observed with his assistant, Mr. Horton, and forwarded letters and sketches from Dr. Brereton of Bedford, and Dr. Turnbull of Aylesbury.

Mr. T. Dell, of Aylesbury, observing with a power of 100, noticed no distortion till five or six seconds before immersion, when the limb became much elongated. The same thing was observed for about the same space of time at the emersion of the first limb.

The Rev. C. Lowndes, of Hartwell, observing with a power of 240, remarked that the limb of *Jupiter* became elongated a few seconds before immersion, and that the light appeared to increase and redden at the side nearest the moon.

Mr. John Peto, writing from Brighton, where he observed with a 5-feet refractor by Tulley, and power 120, says, "The planet emerged steadily till it had nearly left the moon, when for a few seconds it appeared projected on the moon's disk; a dark line, as if of shadow, defining the edge. The pale greenish light of *Jupiter* contrasted strongly with the golden colour of the moon."

Mr. R. Hodgson observed with an 8-feet equatoreal of 6 inches aperture, and power 160. "Not the slightest change of form or colour was noticed." At emersion the light of *Jupiter* appeared pale, and slightly tinged with blue as compared with the moon. Mr. Hodgson writes at the same time, that with the same telescope, and power 140, he witnessed a projection of the first satellite on the disk of *Jupiter* on the 3d of January, with a clear space around it for nearly a minute.

The Rev. T. W. Webb observed with a 5½-feet achromatic, and power 144, from Hardwick, near Hay, South Wales. He

1857MNRAS..17...71M

writes, "The planet exhibited no distortion, or other unusual appearance, but it left behind it a diffused glimmering of small extent upon the limb, which might probably be due to the want of more perfect definition." Mr. Webb speaks also of the contrast of the paler light of *Jupiter* with that of the moon, and adds, "From which, in all probability, arose the appearance, which seemed to exist, of a narrow darkish border attached to the lunar limb."

Mr. W. Huggins, of Tulse Hill, Norwood, sent his observed times of immersion and emersion. He saw no distortion or projection at either.

Mr. Hippisley, in a letter to Mr. De la Rue, mentions having seen a distortion of form which he describes thus:—"One thing struck me very much, which I did not at all expect, and am pretty sure was not illusive, which was the flattening of *Jupiter's* limb next the moon at the moment at which the line of darkness between the lunar and jovian limbs appeared (*i. e.* at emersion), so that to my eye the equatoreal diameter of the planet did not for a second or two seem more than the polar."

Mr. F. Brodie, of Eastbourne, observed with his 7½-inch glass, and power 106. He writes, "I did not notice any distortion of the disk of the planet either at its disappearance or reappearance. I was, however, very much struck with the disappearance of the fourth and third satellites. The moon's disk gradually advanced over the disk of the satellite, and when the satellite's disk had quite vanished, there remained a small semi-halo of light for the space of one-third to half a second around the point of its disappearance, forcibly reminding me of a *sunset in miniature.*" The times of occultation were sent.

Mr. Perigal sent his observations of immersion and emersion taken at Lewisham, where he used a small telescope by Dollond. He saw no distortion or projection.

Mr. T. W. Burr, of Highbury, writes, "At the moment of contact the dark limb of the moon became suddenly illuminated to the extent of about three diameters of the planet both above and below it. The appearance was that of a thin line of silvery light, shading rapidly off to the inside of the circle. It was almost momentary in duration, certainly not exceeding two seconds. I had previously satisfied myself that the whole disk of the moon was not visible by the ashy light usually seen when it is young." Mr. Burr also sent local sidereal times of the occultation.

Mr. J. W. Jeans, of Grantham, made similar observations, but under unfavourable circumstances. He forwarded his observed times, and sent with them an account of the previous occultation on the 8th of Nov. 1856, which laboured, however, under the same disadvantages.

Mr. Matthew Jee, of Edge Hill, Liverpool, sent a short account through Mr. Hartnup.

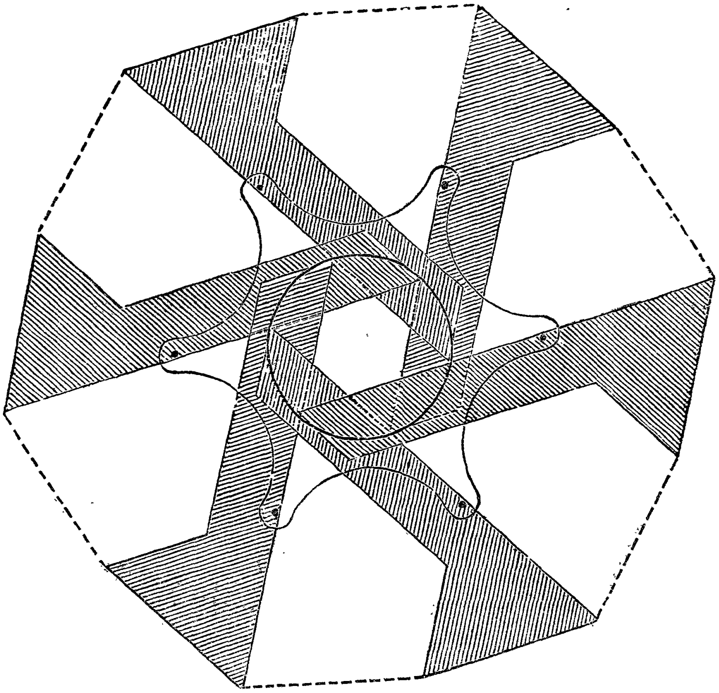
Lord Wrottesley sent a short account of the observations taken at his observatory at Wrottesley with the 11-feet equatoreal, and power 140. No distortion was noticed. "It should, however, be

1857MNRAS..17...83C

observed that for some seconds after the first contact a rosy purplish light appeared on the moon's limb where the planet was disappearing."

Mr. Worthington, of Crumpsall Hall, Manchester, observed with a refractor of 5 inches aperture, power 125, in company with his friend Mr. Baxendell, to whom he gave up his Newtonian of 13 inches aperture, focal length 9 feet, power 108. "Mr. Baxendell observed that the limb of the planet at the point of contact with the dark limb of the moon suddenly presented a reddish appearance. . . . . Neither of us perceived any distortion of the form of the planet." The times observed were sent. The position of Mr. Worthington's observatory was also stated to be—latitude $53^\circ\ 30'\ 49''\cdot 2$, longitude $8^m\ 55^s$ west.

The Editor of the present *Notice* has been induced, by the perusal of Mr. Lassell's communication, in which is proposed a construction of diaphragm for measuring the area of object-glass exposed during photometric measurements, to send the following one, which has been applied to the equatoreal at Redhill for more than two years past. The inner circle in the figure represents the



full size of the object-glass, on to the end of which is fitted the piece with the re-entering curves, containing the centres of motion of six thin plates of brass, formed somewhat like knife-blades.

1857MNRAS..17...83C

The construction is so simple as to require little explanation. The one idea in it is the use of parallel motion, whereby, by the introduction of the connecting pieces, represented by the dotted lines, the six blades are constrained to move simultaneously through equal angles, their inner edges then forming a hexagonal diaphragm variable in dimensions at the pleasure of the observer, who is supposed to be furnished with a light rod led down the tube of the telescope, carrying at its upper end a small pinion, working in a piece of rack-work attached to any one of the blades. An indicating-plate at the lower end serves to show the aperture at any moment. The above plan has been kept back hitherto from an unwillingness to communicate schemes unaccompanied by results of observation; but as copies have been given to various friends, and the present appears a natural occasion to introduce it to these pages, it is herewith given as a note to Mr. Lassell's paper. It is well known that Steinheil attains a similar result by the use of a movable circular stop within the telescope tube. It is not, however, intended to discuss the relative merits of the different constructions.—[R. C. C.]

A considerable portion of the present *Notice* has been devoted to accounts of the occultation of *Jupiter*, as many appearances of distortion, beads, scattered light, and altered tints were witnessed, which bear upon the vexed question of a lunar atmosphere and the phenomena seen during solar eclipses. It seemed desirable that the inquirer should have the power of comparing the results of observer with observer, refractors with reflectors, high powers with low powers. The aperture and magnifying power has, therefore, been given wherever the information was supplied. The hyperbolic forms on page 69 have been a little exaggerated by the engraver. In the woodcut on page 81 there will be seen a dark score on the moon unexplained in the text. The description there given is of what was seen by Mr. W. Simms the elder; but the woodcut includes the peculiarities seen by the two other observers of that name, and the dark mark in question was seen by Mr. W. Simms the younger, who states that, together with the dark line defining the edge of the moon, it caused the portion of the body included between to appear unusually bright.

A paragraph having appeared in *The Times* newspaper, in which it was stated that the whole disk of *Jupiter* had been seen projected on the moon, by a ‘Dr. Forster on the Continent,’ the Editor wrote to Dr. Förster of the Berlin Observatory, and is authorised to state that no such appearance was seen by *him*, the weather having been such as to prevent the occultation being observed at all at Berlin.

1857MNRAS..17...85.

The 4th volume of the *Markree Catalogue* has just appeared, containing the approximate positions of an additional 14951 stars; making a present total of 60066. A supplementary volume will still be required for the publication of a few unfinished zones.

Mr. Hind has just circulated a new *Sweeping-Ephemeris of the Great Comet of* 1556, in which geocentric positions, computed from new elements, are given for every tenth day of the year.

We learn by No. 1064 of the *Astronomische Nachrichten*, that Dr. Argelander has just published the first four charts of his proposed *Atlas of the Northern Heavens for the beginning of the Year* 1855. We may have occasion to refer again to this projected work in a future number.

To be sold, the property of a Fellow of the Society, a small altitude and azimuth instrument, by W. and S. Jones of Holborn, London. The circles are six inches in diameter. May be seen at the chambers of T. W. Burr, Esq., 12 Paternoster Row. Price 9*l*.

ERRATA.

Vol. xii., p. 34, line 8 from the bottom, *for* $2^{h}\ 1^{m}$, *read* 2^{h} P.M.

— xiii., — 218, line 31, *for* 'combination,' *read* 'continuation.'

— xiv., — 158, line 2, *for* 'on,' *read* 'or.'

— xv., — 9, read thus,—
For the horizontal semidiameter = 4″·750484
For the vertical semidiameter = 4 ·750554

— xv., — 14, last line, *for* 'greater,' *read* 'less.'

— xv., — 140, line 3 in the note, *read* 'coincides *best* practically.'

— xv., — 144, line 18, *for* 'official fiction,' *read* 'friction.'

— xvi., — 63, line 11. Substitute the words, 'Very few *accessory dots* were seen' for the words, 'There were very few penumbræ without a nucleus.' The word in the German is *Nebenpunkten*, denoting the little changeable dots so frequently sprinkled around the main spot.

— xvi., — 185, line 12, *for* 'zinc-ball,' *read* 'time-ball.'